

STUDIES IN THE LIABEAE (ASTERACEAE). VII.

ADDITIONS TO THE GENUS MUNNOZIA.

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Efforts to revise the Liabeae of Ecuador have resulted in the discovery of three undescribed species of Munnozia, one each from Colombia, Ecuador and Peru. The Ecuadorian species belongs to the subgenus Kastnera, the Colombian species is notable for the long outer involucral bracts, and the Peruvian species is unique in the genus by the complete lack of pappus setae.

Munnozia (Kastnera) asplundii H. Robinson, sp. nov.

Plantae herbaceae perennes decumbentes vel subscandentes 60 cm vel ultra longae. Caules rubrescentes teretes vel striati pilosi. Folia base non connata, petioli 1.5-4.0 cm longis late alatis margine argute dentatis base latioribus et valde auriculatis; laminae herbaceae ovatis 3-9 cm longae et 1.5-6.5 cm latae base cordatae ex alis petioli fere discontinuae margine utrinque 5-10 dentatae vel duplo-dentatae apice acutae supra sparse grosse pilosae subtus tenuiter canescentiter tomentosae, nervis secundariis in basis congestis, nervis subtus flaccide pilosis. Inflorescentiae plerumque in apicibus ramorum ternatae, pedicellis usque ad 8 cm longis dense longe pilosis, pilis flaccidis non glandulosis. Capitula 10-11 mm alta et 13-18 mm lata; bractee involucri 20-24 oblongo-ovatae vel oblongo-lanceolatae ca. 7 mm longae et 1.0-3.3 mm latae 2-3-seriatae margine puberulae vel minute serrulatae anguste scariosae apice acutae purpurascentes extus inferne sparse pilosae superne minute stipitoglanduliferae; receptacula minute puberula vel glabrescentia. Flores radii ca. 16; corollae flavae, tubis 3.5 mm longis pilosis, limbis 15-25 mm longis et 2.5 mm latis in  $\frac{2}{3}$  inferioribus piliferis apice leniter emarginatis. Flores disci ca. 30; corollae flavae, tubis 3-5 mm longis superne piliferis, faucis valde abruptis 1 mm longis glabris, lobis 3 mm longis 0.6-0.7 mm latis superne sensim piliferis; filamenta in parte superiore ca. 0.4 mm longa; thecae ca. 2 mm longae, cellulis exothecialibus in parietibus lateralibus et transversalibus noduliferis; appendices 0.45-0.50 mm longae ovatae acutae. Achaenia immatura ca.

1.5 mm longa dense setifera ca. 8-costata; squamae pappi laceratae ca. 0.6 mm longae inferne breviter connatae, setae plerumque 5 ca. 3 mm longae apice decrecentes. Grana pollinis 35-37 $\mu$  diam.

TYPE: ECUADOR: Pichincha: NW slope of Mt. Corazón, alt. c. 3150 m. Decumbent or climbing herb, flowers golden yellow. 27 July 1955. Asplund 17087 (Holotype S).

Munnozia asplundii is most closely related to M. acostae (Chung) R. & B. which proves to be a member of the subgenus Kastnera. The new species is distinct by the more ovate leaf blades having cordate bases that are separated from the petiole wings by a narrow sinus, and the undersurface of the blade is thinly tomentose. In M. acostae the leaf blades are triangular with truncate or hastate bases and the undersurface has no tomentum.

Munnozia ferreyrii H. Robinson, sp. nov.

Plantae herbaceae perennes erectae vel procumbentes 30-70 cm longae. Caules rubrescentes teretes vel striati pilosi. Folia base in disco connata, discis 1-2 cm latis, petiolis 7-17 mm longis distincte anguste alatis; laminae herbaceae triangulari-ovatae 2.0-4.5 cm longae et 1.5-4.5 cm latae base truncatae margine paucè breviter dentatae apice breviter acutae supra pilosae subtus canescentiter tomentosae, ex apice petioli valde trinervatae subtus in nervis primariis pilosae. Inflorescentiae laxae cymosae paucè alternate ramosae, pedicellis 2-7 cm longis dense pilosis. Capitula 7-9 mm alta et 5-10 mm lata; bractee involucri 20-24 oblongo-ovatae vel oblongo-lanceolatae 2.5-5.0 mm longae et 1.0-1.5 mm latae 2-3-seriatae margine integrae anguste scariosae apice acutae purpurascens extus dense pilosae; receptacula ignota. Flores radii 12-13; corollae flavae, tubis ca. 2 mm longis piliferis, limbis 12-14 mm longis et 1.5-2.0 mm latis extus sparse glanduliferis inferne piliferis apice leniter emarginatis. Flores disci 12-13; corollae flavae, tubis ca. 2 mm longis piliferis, faucibus abruptis 1.5-1.8 mm longis base piliferis, lobis ca. 1.8 mm longis ca. 0.5 mm latis extus sparse glandulo-punctatis apice glabris vix papillosis; filamenta in parte superiore ca. 0.3 mm longa; thecae 2 mm longae, cellulis exothecialibus in parietibus lateralibus raro noduliferis; appendices ovatae vel oblongae ca. 0.25 mm longae et 0.2 mm latae apice subtruncatae. Achaenia ca. 3 mm longa et ca. 1 mm lata puberula 6-costata; squamae pappi minute usque ad 0.25 mm longae plerumque connatae denticulatae, setae nullae. Grana pollinis 27-33 $\mu$ .

TYPE: PERU: Cajamarca: Celendin, Gorge of Rio Marañon 3-4 km below summit of road to Celendin, above Balsas, alt. 2950 m. Herb. Lvs. amplexicaul, upper face medium green, white villous; under face pale green, pubescent. Fls. bright yellow. 21 May 1964. Hutchison & Wright 5234 (Holotype US).

The new species has a reduced habit and a pappus with short squamae, both reminiscent of the subgenus Kastnera. The exothelial cells are like those of M. sagittata (Sch.Bip.) R. & B. in the subgenus Munnozia, however. Fused foliar disks on the nodes also seem foreign to the subgenus Kastnera. Examination has shown no evidence of pappus setae, a condition unique in the genus. Short pappus squamae are present but these are shorter than those in the subgenus Kastnera and are not obvious in fully mature achenes. The six-ribbed achenes also seem distinctive. Achenes in Munnozia usually have 8-10 ribs.

Munnozia fosbergii H. Robinson, sp. nov.

Plantae herbaceae perennes erectae ca. 7 dm altae base decumbentes. Caules subtiliter rubrescentes sexangulares evanescentiter arachnoideo-tomentosi. Folia base in disco connata, discis 1.5-2.0 cm latis, petiolis 2-4 cm longis alatis, alis utrinque 2-5 mm latis remote 2-4-denticulatis; laminae herbaceae deltoideae vel 5-angulatae 3-8 cm longae et 2-5 cm latae base truncatae margine utrinque remote minute 3-10-denticulatae apice argute acutae vel vix acuminatae supra sparse pilosae subtus tenuiter canescentiter tomentellae, nervis e basis distincte trifidis, nervis lateralibus valde ascendentibus, nervis subtus flaccide pilosis. Inflorescentiae plerumque in apicibus ramorum ternatae, pedicellis 4-6 cm longis arachnoideo-tomentosae. Capitula 10-12 mm alta et plerumque 12-15 mm lata; bractee involucri 22-25 bi-tri-seriatae 5-6 exteriores oblanceolatae 12-13 mm longae acutae margine tomentosae extus sparse evanescentiter arachnoideo-tomentosae interiores oblongo-lanceolatae vel anguste lanceolatae 9-10 mm longae glabrae anguste acutae; receptacula minute squamulifera. Flores radii ca. 20; corollae flavae, tubis 2.5-3.0 mm longis superne pilosis, limbis 15-18 mm longis et 1.7 mm latis inferne dense pilosis superne stipitate glanduliferis. Flores disci ca. 23; corollae flavae, tubis 3.5-5.0 mm longis sparse piliferis, faucibus abruptis 2.0-2.5 mm longis inferne dense piliferis, lobis ca. 2 mm longis et 0.4-0.5 mm latis extus stipitate glanduliferis saepe in apice pilis nonglandulosis unicus; filamenta in parte superiore ca. 0.4

mm longa; thecae 2.5 mm longae, cellulis exothecialibus solum in parietibus transversalibus noduliferis; appendices 0.4 mm longae et 0.15 mm latae oblongae apice rotundatae. Achaenia immatura 1.5 mm longa superne setifera ca. 10-costata; setae pappi ca. 30-32 plerumque 6-7 mm longae apice vix decrescentes, squamae nullae. Grana pollinis 35-37 $\mu$  diam.

TYPE: COLOMBIA: Boyaca: Buenavista, headwaters of Río Pauto, ridge e. of Quebrada Laja (Q. Colorada), 30 km e.s.e. of Socha, Lat. 5°55' N., Long. 72°28' W. New clearing, cloud forest on steep slopes, alt. 2700-2900 m. Sap milky, fls. yellow. 10 Nov. 1944. Fosberg 22262 (Holotype US).

The new species has the general aspect of the common Munnozia sagitata, but it is immediately distinguished by the broadly connate bases of the leaves. The involucre is also distinctive and unique in the genus by the enlarged outer bracts.